

providing a patterned mask layer over said conductive layer, said patterned mask layer having an opening therein which exposes said region between said first and second features;

etching said conductive layer within said opening between said first and second features using a continuous etch comprising:

a first chemistry having a first degree of anisotropy, said first chemistry etching said conductive layer and resulting in a portion of said conductive layer remaining between said first and second features; then

a second etch chemistry having a second degree of anisotropy which is more isotropic than said first degree of anisotropy and which removes said conductive layer remaining between said first and second features.

28. The method of claim 27 further comprising forming a polysilicon layer during said formation of said conductive layer within said opening.

29. The method of claim 28, further comprising:

during said etch of said conductive layer with said first etch chemistry, etching said polysilicon with an etch comprising a flow rate of between about 1.9 sccm and 2.7 sccm of an oxygen-containing gas, a flow rate of between about 35 sccm to about 65 sccm of a halogen-containing gas, and a top power of between about 245 watts and about 315 watts; and

during said etch of said conductive layer with said second etch chemistry, etching said polysilicon with an etch comprising a flow rate of between about 3.6 sccm and about 4.7 sccm of an oxygen-containing gas, a flow rate of between about 35 sccm to about 65 sccm of a halogen-containing gas, and a top power of between about 385 watts to about 455 watts.

30. The method of claim 28, further comprising:

during said etch of said conductive layer with said first etch chemistry, etching said polysilicon with an etch comprising an oxygen flow rate of between about 1.9 sccm and 2.7 sccm, a flow rate of about 55 sccm of a halogen-containing gas, and a top power of between about 245 watts and about 315 watts; and

during said etch of said conductive layer with said second etch chemistry, etching said polysilicon with an etch comprising an oxygen flow rate of between about 3.6 sccm and about 4.7 sccm, a flow rate of about 55 sccm of a halogen-containing gas, and a top power of between about 385 watts to about 455 watts.

31. A method used to etch a conductive layer to result in a selected profile of said conductive layer, comprising:

providing a semiconductor wafer substrate assembly comprising a semiconductor wafer;

forming an etched conductive layer over said semiconductor wafer, wherein said conductive layer comprises first and second vertically-oriented cross-sectional sidewalls, said sidewalls each comprising a lower portion and an upper portion continuous with said lower portion, with said upper portion being further away from said wafer than said lower portion;

etching said conductive layer using an etch comprising a flow rate of between about 6 sccm and about 12 sccm HeO_2 , 50 sccm HBr , 100 sccm He , 70 watts lower power, 350 watts upper power, and a pressure of 60 mTorr,

wherein said HeO_2 flow rate is about 6 sccm to provide an etch which removes said lower and upper portions of each said sidewall of said conductive layer at about the same rate to result in a substantially vertical profile of said conductive layer;

wherein said HeO_2 flow rate is about 9 sccm to provide an etch which removes said lower portion of each said sidewall of said conductive layer at a faster rate than it removes said second portion to result in a substantially rounded profile of said conductive layer; and

wherein said HeO_2 flow rate is about 12 sccm to provide an etch which removes said lower portion of each said sidewall of said conductive layer at a faster rate than it removes said second portion to result in said conductive layer having a profile which tapers inward at a uniform rate from said upper sidewall portion to said lower sidewall portion.

32. The method of claim 31 further comprising forming a polysilicon layer during said formation of said conductive layer.

33. A method used to form a semiconductor device, comprising:

providing a semiconductor wafer substrate assembly having a planarized wafer surface and at least first and second features in spaced relation to each other which define a region comprising an opening between said first and second features;

forming a conductive layer over said first and second features and within said opening;

providing a patterned mask layer over said conductive layer, said patterned mask layer having an opening therein which exposes said region between said first and second features;

etching said conductive layer within said opening between said first and second features using a continuous etch comprising:

a first etch which erodes said conductive layer with ions traveling in a first direction substantially perpendicular with a plane of said planarized wafer surface and leaves conductive stringers between said first and second features subsequent to said first etch; then

a second etch which electrically charges said ions to bend said charged ions into said stringers in a second direction which is less perpendicular with said plane of said planarized wafer surface than said first direction and removes said conductive stringers remaining between said first and second features.

34. A method used to form an electronic device having a semiconductor device, the semiconductor device formed by a method comprising:

providing a semiconductor wafer substrate assembly having at least first and second features in spaced relation to each other which define a region comprising an opening between said first and second features;

forming a conductive layer over said first and second features and within said opening;

providing a patterned mask layer over said conductive layer, said patterned mask layer having an opening therein which exposes said region between said first and second features;

etching said conductive layer within said opening between said first and second features using a continuous etch comprising:

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a first chemistry having a first degree of anisotropy, said first chemistry etching said conductive layer and resulting in a portion of said conductive layer remaining between said first and second features; then

a second etch chemistry having a second degree of anisotropy which is more isotropic than said first degree of anisotropy and which removes said conductive layer remaining between said first and second features.

35. The method of claim 34 further comprising forming a polysilicon layer during said formation of said conductive layer within said opening.

36. The method of claim 35, further comprising:

during said etch of said conductive layer with said first etch chemistry, etching said polysilicon with an etch comprising a flow rate of between about 1.9 sccm and 2.7 sccm of an oxygen-containing gas, a flow rate of between about 35 sccm to about 65 sccm of a halogen-containing gas, and a top power of between about 245 watts and about 315 watts; and

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during said etch of said conductive layer with said second etch chemistry, etching said polysilicon with an etch comprising a flow rate of between about 3.6 sccm and about 4.7 sccm of an oxygen-containing gas, a flow rate of between about 35 sccm to about 65 sccm of a halogen-containing gas, and a top power of between about 385 watts to about 455 watts. --
